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places of forty-three have been derived from the Greenwich Observations of 1850, as printed, and the observations of 1851 and 1852, as supplied in manuscript by the Astronomer Royal. The positions of γ *Orionis*, h^2 *Sagittarii*, ϱ *Capricorni*, and γ^1 *Virginis*, have been taken from the Greenwich Twelve-year Catalogue, the place for 1840 alone having been adopted for the latter star. The proper motions, as determined by the Rev. R. Main, in his paper on the subject (*Mem. Ast. Soc.* vol. xix.), or computed by similar formulæ, have been included in the reductions of the mean places of the forty-seven additional stars to the year 1857.

Among minor improvements visible in this volume may be mentioned an economising of space, which has been judiciously employed in promoting the usefulness of the Ephemeris.

Determination of the Longitude of Papeété, from Observations of a partial Eclipse of the Sun.

(*Communicated by Rear-Admiral Sir Francis Beaufort.*)

The geographical position of Tahiti was originally determined by Captain Cook on the occasion of the expedition which was despatched under his command by the British Government to observe the transit of *Venus* at that island in the year 1769. The observations of the transit, which occurred on the 4th of June, 1769, were made at a place in the northern extremity of the island, since called Point Venus. The calculations indicated the longitude to be 151° 52′ 54″ relatively to the meridian of Paris.

The observations contained in the present communication were made at the Government House of Papeété (the capital of Tahiti), on the occasion of an eclipse of the sun, which occurred on the 6th of June, 1853. It was intended that observations should also be made at Afaite, one of the neighbouring islands, where the eclipse was to be annular; but the expedition despatched by the Governor for this purpose failed to arrive before the occurrence of the phenomenon.

The eclipse was observed at Papeété by three individuals, viz. by the Governor, by Lieut. Desaux of the French Navy, chief officer of his staff, and by M. Briot, his ordnance officer. Lieut. Boulangé counted the seconds for the three observers upon a marine time-keeper, regulated from observations made by him on the preceding days and two hours before the occurrence of the phenomenon. The sky was very clear.

The precise instant of the separation of the two discs was announced by the three observers as follows:—

	h	m	s
M. Briot ………………	12	51	41·0
M. Desaux ……………	12	51	43·5
The Governor …………	12	51	44·0

Of the three observations, the two last are entitled to the

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greatest confidence, partly on account of their accordance and partly from the superiority of the instruments with which they were made. Their mean, viz. $12^{h}\ 51^{m}\ 43^{s}{\cdot}75$, or in mean time, after all corrections were applied, including the error of the watch, $22^{h}\ 7^{m}\ 40^{s}{\cdot}7$ (June 5), was accordingly employed as the basis of calculation, in which account is taken of the heights of the barometer and thermometer at the time of observation. The following are the observations from which the latter data were deduced :—

	h m	Bar.	Ther. ° ′	
June 5	2 30	0·764,8	26	(Centigrade)
6	2 25	0·764,02	26 3	—

The calculations for the determination of the longitude were executed by M. Adam Kutcyski. They give for the longitude of Papeété : —

	h m s
In Time	10 7 34·31
Arc	151 54 4·65

These numbers have reference to the meridian of Paris. They present a satisfactory agreement with the longitude indicated in the *Connaissance des Temps.* In the latter work the longitude of Point Venus is stated to be 151° 49′ 19″. Now M. Kutcyski, by a process of triangulation based upon this determination, found the longitude of the Government House of Papeété to be 151° 54′ 4″·5, which differs only 15 hundredths of a second from the result obtained by means of observations of the eclipse.

On the Parallax of Argelander's Star. By Prof. C. A. F. Peters.*

In this paper M. Peters subjects to a critical discussion the recent researches of M Wichmann on the parallax of Argelander's star (1830 Groombridge), and assigns what he considers to be the most trustworthy results deducible from the observations.

The basis of M. Wichmann's investigation consisted of a series of heliometric measures of the distance of Argelander's star A, from three other stars in its vicinity, a, a', a''.† The star a was on one side of the principal star, A, and the stars a', a'', were on the other, all the four stars being nearly upon the same parallel.

By a discussion of the observed *differences* of the distances of the stars of comparison from the principal star A, M. Wichmann found the parallax of the latter star to be 0″·135, with a probable error of 0″·013, the parallaxes of the stars of comparison being supposed to be insensible.

A similar discussion of the observed *sums* of the distances presented a peculiar difficulty in consequence of the maximum effect

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* *Ast. Nach.* No. 865–6.

† The stars are here denoted as in Wichmann's Researches, for an abstract of which see *Monthly Notices*, vol. xiii. p. 131.

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